



RESEARCH DEPARTMENT

The service areas of the Holme Moss television and v.h.f. sound transmitters

TECHNOLOGICAL REPORT No. K-173

1964/35

**THE BRITISH BROADCASTING CORPORATION
ENGINEERING DIVISION**

ADDENDUM

RESEARCH DEPARTMENT - BRITISH BROADCASTING CORPORATION

Technological Report No. K-173

(1964/35)

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The service area of the Holme Moss Band II transmission had never been surveyed. When the survey was started in April 1961 it was decided to include also a check of the Band I service area. The preliminary survey has never been considered satisfactory on account of the small number of points measured at the time. Because of the pressure of more urgent work, the measurements extended over the period April 1961 to November 1963. The Band I measurements give more detailed information of the service area, and largely confirm the preliminary survey. It is of interest to note that in the latest measurements 50% of the towns are within ± 2 dB and 90% are within ± 6 dB of the preliminary survey.

RESEARCH DEPARTMENT

**THE SERVICE AREAS OF THE HOLME MOSS
TELEVISION AND V.H.F. SOUND TRANSMITTERS**

Technological Report No. K-173
(1964/35)

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THE SERVICE AREAS OF THE HOLME MOSS TELEVISION AND V.H.F. SOUND TRANSMITTERS

SUBJECT

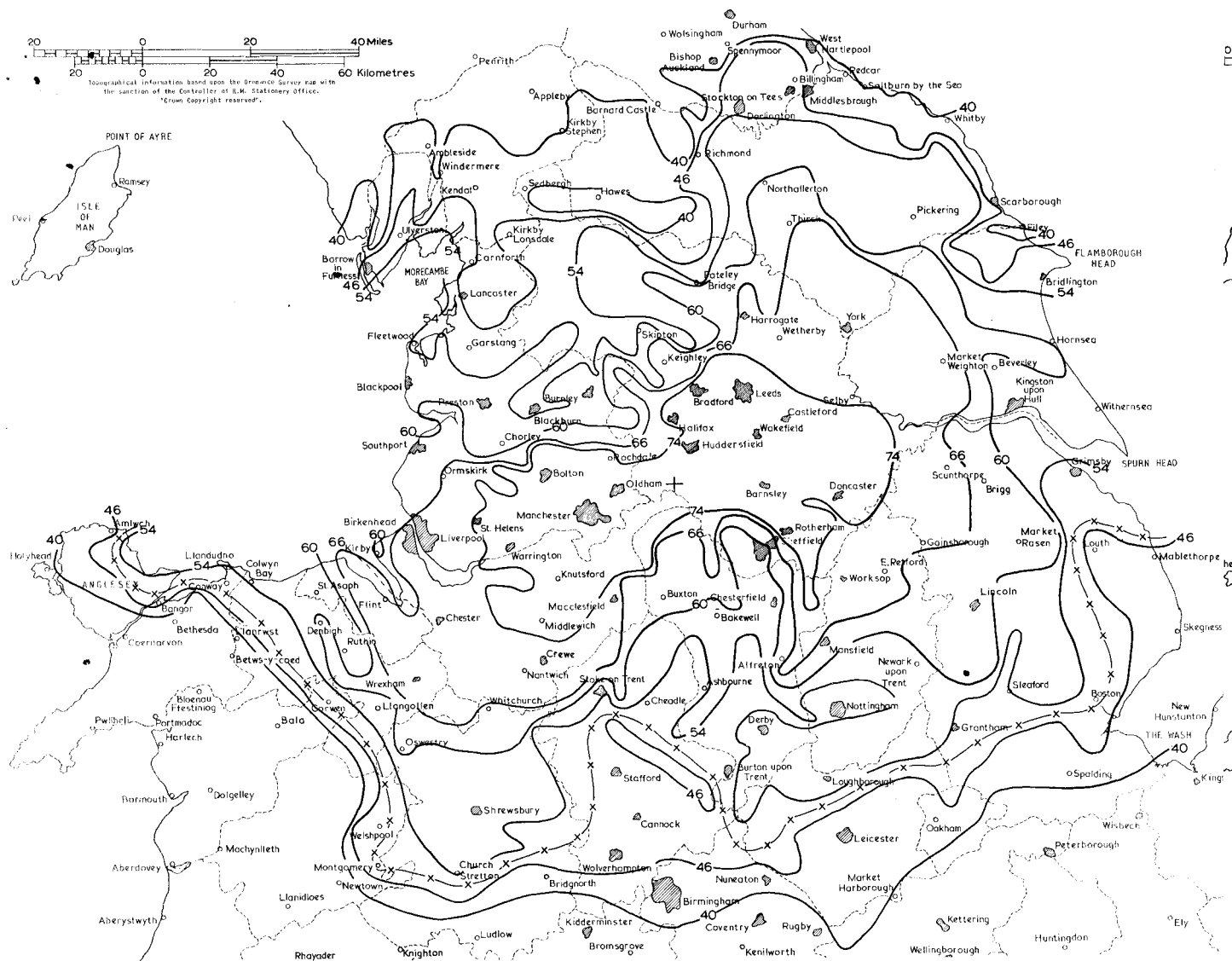
This report gives the results of a re-survey of the Holme Moss television transmission and a survey of the v.h.f. sound transmission. The re-survey of the television transmission has been made in more detail than was possible when the original survey was made.

1. SUMMARIZED DESCRIPTION OF TRANSMITTERS

	Television	V.H.F. Sound
Band	I	II
Channel	2	-
Frequencies	Vision: 51.75 Mc/s Sound: 48.25 Mc/s	Light: 89.3 Mc/s Third: 91.5 Mc/s Home: 93.7 Mc/s
Site Height (above mean sea level)	1720 ft (524 m)	1720 ft (524 m)
Aerial Height (above ground level)	735 ft (224 m)	647 ft (197 m)
Transmitter Power	50 kW (one unit)	20 kW (two 10 kW units)
Aerial	Two tiers of four dipoles	Eight tiers of four slots
E.R.P.	100 kW	113 kW
Polarization	Vertical	Horizontal
H.R.P.	Omnidirectional	Omnidirectional

2. SURVEY RESULTS

Maps T.591 and F.185 show the field strength contours for the television and v.h.f. sound transmissions respectively.



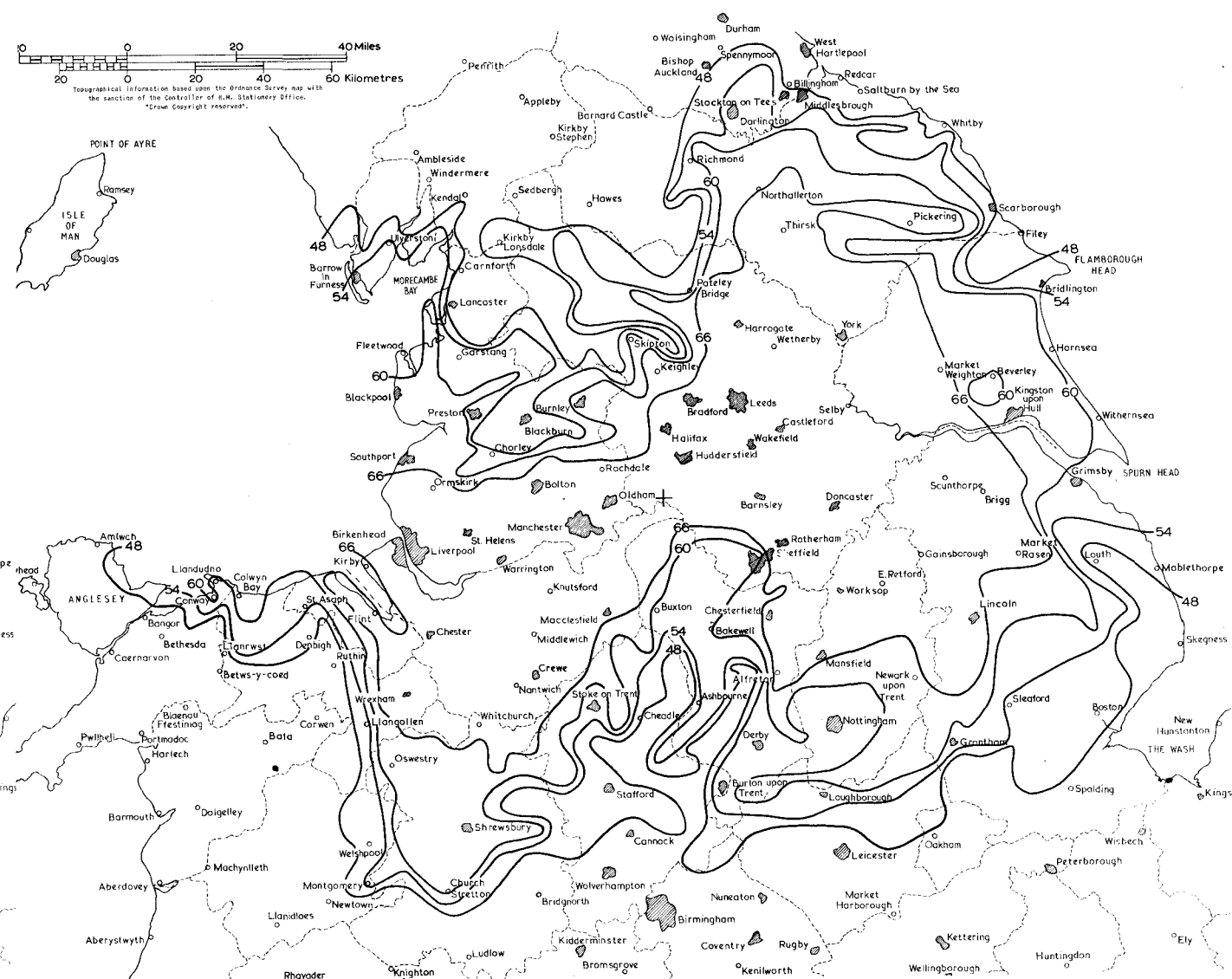
SITE HEIGHT: 1,720 ft (524 m) a.m.s.l. POLARIZATION: VERTICAL

AERIAL HEIGHT: 735 ft (224 m) a.g.l. AERIAL: TWO TIERS OF FOUR DIPOLES (PHASE ROTATION)

E.R.P.: 100 kW H.R.P.: OMNIDIRECTIONAL

NOTES:

- The contours represent the field strength in decibels (dB) relative to $1 \mu\text{V/m}$ at 30 ft (9.1 m) above ground exceeded at 50% of receiving sites in a given locality. The value exceeded at 90% of receiving sites may be as much as 10 dB below the value indicated by the contours, particularly in hilly and built-up areas.
- X—X—X— Limit of service area free from perceptible co-channel interference from all U.K. co-channel transmitters for 90% of the time based on a protection ratio of 45 dB with a reduction of 10 dB for cross polarization and 10 dB for frequency offsets, allowance being made for receiving aerial directivity.



Map F.185 - HOLME MOSS

Band II (Measured)

(Light 89.3 Mc/s; Third 91.5 Mc/s; Home 93.7 Mc/s)

SITE HEIGHT:	1,720 ft (524 m) a.m.s.l.	POLARIZATION:	HORIZONTAL
AERIAL HEIGHT:	647 ft (197 m) a.g.l.	AERIAL:	EIGHT TIERS OF FOUR SLOTS
E.R.P.:	113 kW	H.R.P.:	OMNIDIRECTIONAL

NOTE:

The contours represent the field strength in decibels (dB) relative to 1 $\mu\text{V/m}$ at 30 ft (9.1 m) above ground exceeded at 50% of receiving sites in a given locality. The value exceeded at 90% of receiving sites may be as much as 10 dB below the value indicated by the contours, particularly in hilly and built-up areas.

Contrary to the usual practice, and to reduce the effort of analysis, only the field strength values exceeded at 50% of the locations are given in the Appendix. Nevertheless, if required, the 10% and 90% values for a particular town(s) can be extracted from the field strength records and made available at short notice. The 50% value is given for all towns and villages measured.

3. COMMENTS ON SERVICES

Because of the commanding position of Holme Moss on the Pennine mountain range, the nominal service areas of the transmitters (40 dB(μ V/m) for television and 48 dB(μ V/m) for v.h.f. sound) are exceptionally large. United Kingdom co-channel interference restricts the television service in a southerly direction to about 48 to 50 dB(μ V/m) but during the summer months interference from distant Continental transmitters propagated by the Sporadic E layer is so severe that the service is sometimes restricted to field strengths greater than 74 dB(μ V/m). This is of little consequence in a southerly direction because of the generous overlap with the service area of the Sutton Coldfield transmitter, but large and very densely populated areas of Yorkshire, Lancashire and Lincolnshire are subject to this interference. This situation will be largely remedied when the East Lincs. and West Lincs. Band III transmitters come into service. Meantime, the Barrow/Lancaster area, Sheffield and Skegness are served by local Band I transmitters, while a further low-power Band I transmitter is being built to serve Scarborough and Filey.

The v.h.f. sound service area is not restricted by co-channel interference.

APPENDIX

Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))	
	Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound
Abergele	57	58	Banks	59	66	Bolsover	75	83
Accrington	54	51	Barlborough	78	82	Bolton	84	88
Ackworth			Barnard			Bolton-le-		
Moor Top	82	86	Castle	37	44	Sands	40	
Addingham	60	53	Barnoldswick	60	54	Bootle		
Adlington	63	62	Barnsley	83	86	(Lancs.)	67	70
Adwick le			Barnton	74	81	Boroughbridge	70	74
Street	75	78	Barrowford	57	55	Boston	53	51
Ainsdale	66	78	Barrow in			Boston Spa		74
Albrighton		54	Furness	48	58	Bottesford	57	
Alderley Edge	83	88	Barrow upon			Bourne	41	39
Alford	41	44	Humber		70	Bowes	41	
Alfreton	65		Barton upon			Bowness on		
Alrewas		47	Humber	57	68	Windermere	38	38
Alsager	73	80	Batley	72	73	Bracebridge		
Altrincham			Bawtry	68	73	Heath		81
and Hale	82	89	Beaumaris	49		Bradford	75	75
Amlwch	42		Bebington	71	78	Bramhope	79	88
Ashbourne	53	50	Bedale	55	62	Branston	60	64
Ashby de la			Beeston			Breaston and		
Zouch	53	57	(Notts.)	54		Draycott		56
Ashton in			Beighton	68	70	Bridgnorth	42	38
Makerfield	80	87	Belmont	87	90	Bridlington	48	52
Ashton under			Belper	54	55	Brierfield	54	56
Lyne	78	79	Beverley	57	54	Brigg	61	70
Askern		72	Biddulph	69		Brighouse	>75	>74
Astley			Billinge	74	78	Brotton	46	48
Bridge	84	88	Bingley	62	62	Buckley	74	76
Atherstone	48		Bingham	56		Burley in		
Atherton	77	80	Birdwell	87	93	Wharfedale	65	64
Audlem	68	71	Birkenhead	67	70	Burncross and		
Audley	70	71	Birstall	81	81	Chapeltown	67	70
Aysgarth	46		Bishop			Burnley	60	60
Ayton		64	Auckland	38		Burscough	69	74
			Bishops			Burton	65	70
Bacup	62	60	Castle		40	Burton Agnes	57	
Baildon	75	79	Blackburn	52	49	Burton in		
Bakewell	55	57	Blackpool	58	61	Lonsdale	50	47
Bala	40		Bollington	65	67	Burton upon		
Bamber Bridge	55	53	Bollington			Trent	51	56
Bangor	51		Cross	77	80	Burton Joyce	47	

Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))	
	Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound
Bury	82	90	Conway	52	61	Eckington	63	66
Buxton	60	55	Coppull	65	67	Edgeworth	77	77
			Cottingham	62	59	Edwinstone	63	71
Cadishead	81	86	Cowling	47	43	Elland	71	68
Caergwrle	70	78	Coxhoe	46	49	Ellesmere	60	66
Caernarvon	37		Craven Arms	42	41	Ellesmere		
Cannock	48	43	Crewe	70	76	Port	70	74
Carcroft	75	77	Crigglestone	86	90	Elloughton		74
Carnforth	48	48	Crosby	65	67	Euxton	60	61
Castleford	81	87	Croston	60	65			
Catcliffe	71	74	Crowle		76	Failsworth	82	85
Catterick		53				Farington	61	63
Cawood	71	77	Dalton in			Farnworth	87	93
Chapel en le			Furness	45	49	Featherstone	84	88
Frith	62	62	Darlington	52	55	Filey	43	39
Chatburn	61	59	Darton	91	97	Fitzwilliam	82	87
Cheadle			Darwen	58	53	Flamborough	51	
(Staffs.)	50	51	Dawley		55	Fleetwood	53	57
Cheadle and			Deganwy	39	46	Flint	68	70
Gatley	82	87	Denbigh	64		Follifoot	88	94
Chester	66	69	Denton	80	83	Formby	64	70
Chesterfield	58	67	Derby	55	58	Forsbrook		51
Chinley	60	58	Dewsbury	88	94	Foulridge	65	66
Chirk	62	64	Disley	81	82	Freckleton	62	67
Chorley	59	56	Ditton	71	80	Frodsham	67	71
Church	59	57	Doncaster	>76	>80	Fulwood	60	63
Church			Donington					
Stretton	58	64	(Lincs.)	45	50	Gainsborough	66	73
Clay Cross	64		Dronfield	55	62	Galgate	44	46
Clayton le			Duffield		52	Garforth	80	85
Moors	53	54	Dukinfield	79	78	Gargrave	55	52
Cleckheaton	82	82				Garstang	54	57
Cleveleys	56	59	Earby	53	47	Gisburn	51	46
Clitheroe	60	60	Earl Shilton	52		Glazebury	81	88
Cloughton	44	44	Easingwold	69	75	Glossop	75	72
Clowne	70	77	East Retford	68	77	Glusburn	55	52
Codnor		65	East Rigton	68	72	Gnosall		51
Collingham	66	70	Eastwood			Gobowen	62	64
Colne	61	57	(Notts.)	65		Golborne	81	88
Colwyn Bay	57	63	Eccleshall		60	Goole	71	75
Congleton	73	74	Eccleston	57	63	Gosberton	47	49
Coningsby		58	Eccles and			Grange		
Connah's Quay		63	Worsley	79	82	(Ches.)	73	82

Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))	
	Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound
Grange over Sands	63	69	Helsby	61	67	Kearsley	85	92
Grantham	51	58	Hemsworth			Kegworth		61
Greasby	64	72	(Yorks.)	78	79	Keighley	62	60
Great Altcar	64	70	Hesketh (Bank			Kendal	45	43
Great Ayton	53	60	and Lane)	65	66	Kidderminster	37	
Great			Hest Bank	40		Kidsgrove	68	72
Budworth	74	76	Heswall	74	85	Kingston		
Great			Heysham	55	61	upon Hull	57	62
Driffield	56	60	Heywood	84	88	Kippax	88	92
Great			High Bentham	49	43	Kirkburton	91	93
Eccleston	58	60	High Lane	85	92	Kirkby	69	73
Great			High Legh	82	87	Kirkby in		
Harwood	66	72	Hinckley	50		Ashfield	63	71
Great Moss	82	88	Hinderwell	44		Kirkby		
Greaves Town	61	63	Hindley	71	75	Lonsdale	52	63
Green			Holbeach	44	46	Kirkby		
Hammerton	68	73	Hollingworth	82	81	Stephen	40	
Greenod	51		Holyhead	39		Kirkham	60	62
Greetland	76	71	Holywell			Kirton		53
Grimsargh	61	63	(Flint)	70	79	Kirton in		
Grimsby and			Hope	68	76	Lindsey	77	80
Cleethorpes	51	55	Horbury			Knaresborough	64	71
Guisborough	41	40	(Yorks.)	84	88	Knott End	53	59
Guseley	75	79	Horncastle	51	55	Knottingley	75	77
			Hornsea	60	57	Knutsford		89
			Horsforth	82	90			
Halifax	92	95	Horton in			Lamberhead		
Hambleton	52	54	Ribblesdale	58	59	Green	80	87
Handforth	84	92	Horwich	66	63	Lancaster	44	42
Harrogate	68	74	Hoylake	64	70	Langtoft	40	
Haslingden	59	56	Hoyland			Leeds	74	78
Hatfield		78	Nether	76	81	Leek	60	59
Hawes	40	31	Howden	70	77	Leicester	46	
Haydock	79	86	Hucknall	54	57	Leigh	80	85
Hayfield	62	56	Huddersfield	>85	>85	Leyburn	54	56
Hazel Grove	88	92	Hyde (near			Leyland	55	53
Heanor	64	65	Manchester)	74	72	Lichfield	52	47
Hebden						Lincoln	61	69
Bridge	66	61	Ilkeston	53	59	Lindale	54	61
Heckmondwike	88	89	Ilkley	49	46	Litherland	67	75
Hedon	55	65	Ingleton	48	43	Littleborough	64	62
Hellifield	61	57	Irby	71	79	Little Hulton	82	86
Helmshore	67	60	Irlam	83	90	Little Lever	82	86

Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))	
	Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound
Little Sutton	72	81	Martin	56	58	Normanton	80	87
Liverpool	69	73	Matlock	47	57	Northallerton	60	63
Llandudno	56	55	Matlock Bath	47	49	Northwich	76	81
Llanfair- fechan	37		Medbourne	40		Norton and Malton	60	67
Llangollen	57	48	Melbourne	57	61	Nottingham	53	57
Loftus	36	36	Melton			Nuneaton	46	
Long Eaton	55	55	Mowbray	46	48			
Longridge	64	68	Menai Bridge	49		Oakengates	66	65
Long Preston	66	63	Messingham	72		Oakhams	44	41
Longton			Mexborough	73	80	Oldham	82	84
(Lancs.)	59	60	Middleham	33		Ormskirk	66	70
Loscoe		58	Middlesbrough	46	49	Orrell Post	79	85
Lostock	61	65	Middleton (nr Manchester)	80	84	Oswaldtwistle	55	50
Loughborough	60	57	Middleton			Oswestry	61	64
Louth	44	45	St. George		60	Otley	64	63
Luddenden- Foot	78	77	Middlewich	76	79	Oxenhope	58	56
Lutterworth	42		Millom	50	50			
Lymm	81	89	Milnrow	71	70	Padiham	54	56
Lytham	61	65	Mirfield	82	80	Parbold	60	59
			Mold	66	64	Patrington	57	61
			Montgomery	54	57	Pateley Bridge		53
Mablethorpe	44	49	Morecambe	51	56	Pendlebury	91	96
Macclesfield	71	73	Moreton	65	71	Penistone	91	93
Madeley (Salop)		50	Morley	81	86	Pensby	73	82
Maghull	62	68	Mosbrough	64	64	Penwortham	62	66
Malpas	71		Mossley	77	72	Pickering	58	69
Maltby	77	81	Much Wenlock		51	Pilling	55	62
Manchester	80	84	Mytholmroyd	65	63	Pinchbeck		48
Mansfield	60	69	Nantwich	78	71	Platt Bridge	76	77
Market Drayton	54	67	Nelson	53	55	Pocklington	70	76
Market Harborough	37		Neston	60	67	Pontefract	77	81
Market Rasen	60	67	Newark upon Trent	57	65	Pool	56	55
Market Warsop	67		Newcastle- under-Lyme	(see 'Potteries')		'Potteries'	59	57
Market Weighton	67	74	New Hey	71	74	Poulton-le- Fylde	57	62
Marple	93	98	New Mills	79	82	Poynton	81	87
Marsden	75	73	Newport (Salop)		50	Preesall	51	59
Marske	36	37	Newton-le- Willows	78	83	Prescot and Whiston	73	79
						Prestatyn	60	58
						Prestbury	77	84

Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))	
	Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound
Preston	59	59	St. Asaph	55	56	Spofforth	65	67
Prestwich	90	97	St. Helens	74	80	Spondon		56
Pudsey	78	79	Sale	81	88	Stafford	53	51
			Saltburn	36	36	Stainland and		
Queensbury	93	91	Sandbach	74	79	Holywell		
Quorndon		59	Scarborough	45	51	Green	82	81
			Scarisbrick	66	68	Stalybridge	73	73
Radcliffe	85	90	Scunthorpe	70	80	Standish	78	80
Radcliffe on			Sedbergh	45	28	Stapleford		
Trent	57		Selby	73	81	(Notts.)	57	62
Rainford	69	72	Settle	56	48	Staveley		
Ramsbottom	71	72	Shaw	76	73	(Derby)	67	70
Rawden	79	88	Sheffield	See Report		Steeton	47	47
Rawmarsh	75	82		No. K-086		Stockport	81	85
Rawtenstall	64	57	Shepley and			Stocksbridge	90	97
Redcar	45	48	Shelley	91	95	Stockton on		
Rhosllan-			Sherburn in			Tees	47	51
erchrugog	72	81	Elmet	72	73	Stoke-on-		(see
Rhostyllen	68	75	Shifnal		48	Trent		'Potteries')
Rhuddlan	56	54	Shildon	46		Stokesley	55	62
Rhyl	66	59	Shipley	64	65	Stone		
Ribbleton	61	60	Shotton			(Staffs.)	43	43
Ribchester	57	54	(Flint)	66	66	Straits	58	60
Richmond	47	54	Shrewsbury	56	61	Stourport on		
Ripley			Silsden	68	68	Severn	34	
(Derby)	67	70	Skegness	41	44	Sutton		
Ripon	59	64	Skelmanthorpe	86	88	(Yks. W.R.)	45	43
Ripponden	69	62	Skelmersdale	70	76	Sutton Bridge	35	
Rishton	66	69	Skipton	59	56	Sutton		
Rochdale	77	79	Slaidburn	51	49	Coldfield	46	
Romiley	85	87	Slaithwaite	78	79	Sutton in		
Rotherham	75	78	Sleaford	54	54	Ashfield	68	72
Rothwell	76	79	Sleights	42		Sutton Leach	77	84
Royston	84	88	Smethwick	44		Sutton on Sea	42	
Royton	79	78	Snaith	76		Swadlincote	56	60
Ruabon	69	74	Somercotes	65		Swallow Nest	84	88
Rufford	65	64	Southport	63	66	Swinton		
Rugeley	49	50	Sowerby			(Yks. W.R.)	73	79
Runcorn	79	87	Bridge	77	70	Swinton		
Ruthin	59		Spalding	42	46	(Lancs.)	82	85
			Speke	71	78			
St. Annes on			Spennymoor	40		Tadcaster	70	75
the Sea	60	62	Spilsby	47	46	Tamworth	50	49

Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))		Town	Median Field Strength (dB(μ V/m))	
	Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound		Tele- vision	V.H.F. Sound
Tarleton	65	68	Welshpool	46	49	Wrea Green	60	65
Tarporley	71	78	Wem	60	65	Wrexham	68	74
Thirsk	63	70	Wensley		42			
Thornaby on Tees	46	48	Wesham	61	64	Yeadon	80	85
Thorne		80	West			York	68	75
Thornton			Bridgford	62				
(Yks. W.R.)	79	81	West					
Thornton (nr Blackpool)	55	58	Hartlepool	44				
Thornton (nr Liverpool)	67	72	West					
Thurnscoe	82	89	Houghton	76	80			
Tickhill	68		West Kirby	56	60			
Tintwistle	68	72	Wetherby		77			
Todmorden	57	55	Whaley					
Trawden	68	66	Bridge		77			
Tyldesley	78	83	Whalley	57	61			
			Whaplode		40			
			Whitby					
Ulverston	52	60	(Yorks.)	40	41			
Upholland	81	91	(Ches.)	70	77			
Uppingham	46		Whitchurch					
Upton (near Birkenhead)	66	71	(Salop)	64	70			
Urmston	82	89	Whitefield	90	94			
Utley	51	53	Whittington	57	61			
Uttoxeter	54	58	Whittle le					
			Woods	55	49			
			Whitworth	66	65			
			Widnes	73	80			
Waddington			Wigan	68	72			
(Lincs.)		81	Willaston	71	79			
Waddington			Wilmslow	84	91			
(Yks. W.R.)	67	69	Wipshire	56	54			
Wainfleet All			Windermere	41	41			
Saints	43	47	Winsford	76	87			
Wakefield	83	89	Winterton	66	70			
Walkden	84	88	Wirksworth	47	49			
Wallasey	66	68	Withernsea	54	54			
Walsall	50		Wombwell	77	80			
Warrington	77	83	Woodhall Spa	55	58			
Waterfoot	59	52	Woodplumpton	60	57			
Wath upon			Worksop	71	77			
Dearne	79	84	Worsborough	84	90			
Weaverham	78	82	Wray	41	<40			
Wellington	57	64						

CHS